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CASE STUDY

Enel X: Driving Digital Transformation in the Energy Sector

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Digital needs to be one of our propositions across each of our business areas... This requires a whole different mentality.

—FRANCESCO VENTURINI, ENEL X

Francesco Venturini remembers the moment well. He had come to the office of his boss, Francesco Starace, the CEO of Enel. He thought the meeting was to review the progress of Enel Green Power, which he had been leading in the years since he replaced Starace as the Managing Director of that unit. But Starace shifted the conversation to a different topic. “I have a different opportunity for you to consider. The world is moving toward electric mobility; we must lead this transition. We’ll never get there as long as we try to change the whole company before we move. We need the focus and commitment of a dedicated business to drive our new future. And you are the right person to lead this transition.”

Venturini replied, “How do I fund this transition?” Starace had anticipated this question. “I cannot write you a big check, but we have some legacy businesses, which are currently spread among our Units, but are not core to any of their strategies. Take them, make them efficient, and use their profits to fuel and fund the transition to the future.” So Venturini started to think about what else he would have to do to lead a new organization in a new direction.

Henry Chesbrough (Ph.D.), Professor at the University of California, Berkeley and LUISS University, prepared this case study as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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Enel Background

Enel¹ is a multinational energy company and a leading integrated player in the world's electricity and gas markets, operating in 33 countries across 5 continents. Enel Group is the world's largest private electricity distributor with 73 million end users. It is also the largest private renewable operator with 46 GW of renewable capacity worldwide, and has the largest retail customer base, supplying 70 million clients around the globe. Moreover, Enel has become the largest integrated utility in terms of market capitalization in Europe.²

Enel (“Ente Nazionale per l’Energia Elettrica”) was established in 1962, when the Italian government launched the nationalization of 1270 local electricity companies. Initially, the main objectives of Enel's activities were unifying voltage levels across the national electricity grid and, at the same time, streamlining operations to deal with a transforming economy and the population growth happening back then.

In the 90s, Enel's organization was modified in line with a gradual liberalization process started in Europe through the issue of three main “Energy Packages” (1996, 2003 and 2009). As a consequence Italy transposed the European Directives into national laws, leading to the separation of Enel's activities (generation, transmission, distribution and retail) into different companies in 1999. Then, at the end of the same year, Enel opened its capital to private investors with the listing of 30% of it in Milan Stock Exchange and New York Stock Exchange.³

As part of the liberalization process, between 1999 and 2005, Enel sold some distribution networks in large cities, the whole transmission system, and part of its generation capacity. In parallel, to diversify its business, Enel expanded into contiguous sectors (e.g. telecommunication, water) according to the so-called multi-utility model. This phase ended a few years later, around 2005, when Enel sold its non-core business and refocused on the energy sector, fueling the internationalization process that had started some years before. Indeed, from the year 2000, the Group had launched its international expansion in North America, Spain, Russia, Romania, and Slovakia, reaching its peak with the acquisition of Endesa in the 2007-2009 period, thus becoming one of the biggest electricity players worldwide.

Over the years Enel has therefore transformed itself from a state monopolist into an international leader in the electricity sector, whose growth has continued in the recent years through the development of new renewables plants around the world and grid acquisitions in South America.

Innovation was a key ingredient of this success story, fostering improvements through the entire value chain. With this regard, Enel has adopted an “open” innovation approach, made possible by an ecosystem of internal and external stakeholders relating with each other thanks to new tools such as an interactive crowdsourcing platform and a set of Innovation Hubs located in the most innovative areas of the world—allowing the best international talent and technologies to converge. Moreover, since innovation should be geared towards sustainability, Enel has decided to unify these activities into one, creating “Open Innovability.”

¹ Background material for this section was taken from <https://www.enel.com/> and A. Gilardoni, *The Italian Utilities Industry Success Stories and Future Perspectives*.

² Data at 31.12.2019

³ Enel is currently listed in Milan Stock Exchange and its largest shareholder is the Italian Ministry of Economy and Finance, which owns 23.6% of the shares as of 31.12.2019. In addition to Enel, other Group companies are listed in the world's most important stock markets.

Sustainability is vital to Enel's strategy, thanks to the strong link between its business activities and the United Nations' Sustainable Development Goals (SDGs): 95% of Enel's 2020-2022 investment Plan indeed directly targets 4 SDGs. A further expression of Enel commitment in this field is represented by its sustainable financing strategy; in fact, Enel has been the first issuer of SDG-linked bonds, besides the issuing of Green Bonds.⁴

Enel Green Power

Enel Green Power S.p.A. is a spinoff of Enel that was formed in December 2008, grouping its global renewable energy interests together into one entity. Today Enel Green Power has become a world leader in the green energy, developing and operating renewables across five continents. The company generates energy principally from hydro, wind, solar power, geothermal, and biomass sources, and has a total worldwide managed capacity of 46 GW of renewable energy from operating these disparate sources. Through its brief history the company's yearly capacity to build renewables assets increased tenfold: in the beginning, it was able to deliver roughly 0.3 GW of power; by 2019 it built more than 3 GW of new renewable capacity, establishing a new global record for the number of renewable assets created per year.⁵

In 2008 Francesco Starace was selected from the retail division of the Enel Group to be the founding CEO of Enel Green Power (EGP). Starace had to create the company by gathering together the often-overlooked renewable energy assets strewn across the different geographies and business lines of the company, thus ensuring more focus on this growing business.

The renewable energy business challenged the habits of a successful utility company in many ways. As Francesco Venturini, ex-CEO of Enel Green Power who succeeded Starace noted:

“Renewables are a completely different energy business. Nuclear plants take at least 15 years to plan and commission. Most large scale power plants require at least 5 years to commission. On the other hand, wind generation facilities are put up in less than one year, so our renewables business requires a very different pace of activity. This requires a whole different mentality. Our speed of decision making and action is a big piece of what makes us different.”

The listing of EGP on the Milan and Madrid stock exchanges on November 4, 2010 was the culmination of a process of transformation, innovation, and development rooted in the best traditions of the Group, launching Enel forward towards a future of growth and leadership in the renewable energy market. At the end of 2010, 30.8% of EGP shares were held by individual shareholders and institutional investors.

In 2014, Starace was named CEO of the parent company Enel, and Venturini took his place at Enel Green Power.

⁴ <https://www.enel.com/media/press/d/2019/01/enel-launches-a-one-billion-euro-new-green-bond-in-europe>

⁵ <https://www.enelgreenpower.com/media/press/d/2020/01/enel-green-power-record-3-gw-of-renewable-capacity-built-in-2019>

The eMobility Context and the Birth of Enel X

Electric mobility, or eMobility, refers to the electrification of the transportation sector. This sector is a large consumer of fossil fuels, as shown in **Exhibit 1**. But there is a great deal of innovation and development going on in the eMobility domain. Private automobiles are shifting towards all electric vehicles, albeit slowly. Public transportation buses are also starting to transition to all electric vehicles. Charging and recharging networks are required to service this emerging all-EV fleet of vehicles.

Francesco Starace, the CEO of the Enel Group, was convinced that electric mobility was going to happen. However, he realized that navigating this transition would require many changes to his company, its culture, its people, and its customers. And he had an extremely large existing business to run in the meantime.

That large existing business was not taking up the eMobility challenge as quickly as he wanted it to, because it represented a marginal activity for them. Based in part on his earlier experience with Enel Green Power, Starace felt that a separate organization could achieve greater focus, and make greater progress, in pursuing the eMobility business. **Exhibit 2** shows the businesses that he eventually sent over to Enel X. As Venturini observed, “EGP would never have been a leader in green power if EGP hadn’t spun out from Enel. We needed to separate it and put it in a different bucket.”

But there was another problem. How would this new business initiative fund itself? Given its commitments to the public markets, Enel was not in a position to write a blank check to launch this new initiative. Instead, Starace decided to shift many of the smaller, less commodity-related businesses inside Enel that lacked the appropriate level of focus because of their more fragmented scale and business purpose, and use the profits from these businesses to fund the new initiatives under Venturini. As Venturini explained:

“My marching orders were to take whatever was not a core business inside Enel, and figure out how to do it competitively, and extract more value from it. One of the big problems we had to deal with is that this stuff that has existed inside Enel for 20 years or more, but it was neglected because it was not part of the core business. So this new initiative was built out of both the old legacy businesses and the new eMobility opportunities, shoved together into a single organization.”

Activities and people were initially structured around 4 business lines:

- **eIndustries**: offering solutions aimed at large-scale C&I customers with special focus on energy as a service (customer insights and energy efficiency) and flexibility (demand response and storage).
- **eMobility**: with the ambition of becoming the technological leader in the sector through its smart charging infrastructure, both in the public and private sector. The value proposition encompasses 3 key steps, namely, owning and operating public charging infrastructures, becoming a one-stop-shop technology solution provider and providing eMobility energy services.

- **eHome:** the business line dedicated to residential customers, offers services of installation of hightech solutions for the house. The strategy aims at becoming leader in the provision of subscription-based Home Assistance for homeowners, based on Maintenance and Repair services offered as insurance products.
- **eCity:** offering lighting and energy efficiency services to public administrations.

Creating these value-added services and becoming capex-light on top of providing energy and installing infrastructure offered new opportunities for Enel to serve its customers, and to do so more profitably.

Acquisitions Made Along the Way

While Enel X began with a number of legacy businesses, they also chose to make a number of external acquisitions to accelerate the transformation of their business. One acquisition was a software company called Demand Energy Networks, based in Spokane, Washington. This company provides a software to optimize the control of batteries, that maximizes the economic returns of energy storage systems alone, or in combination with distributed generation (DG). A second acquisition was EnerNOC, a company based in Boston with over 1,000 employees that provides demand flexibility solutions to industrial customers, known as “demand response” services. By aggregating loads of customers that are willing to shut off their electricity consumption in exchange of remuneration, EnerNOC provides the electrical grid operators the flexibility needed to balance the ever increasing shares of intermittent renewable generation coming online. Enel made a third acquisition 8-9 months later, in San Carlos, California. This company, called eMotorWerks, makes a smart wall box to recharge electric vehicles. This intelligent wall box allows consumers to select when to charge their electric vehicle. They also were the market leader in that space, with more than 60,000 wall boxes sold as of January 2020.

The combination of acquisitions, divestitures, and organic growth caused a great deal of change inside Enel X. This meant that communication inside Enel X was also in the process of changing. As was typical of most utilities, internal communication used to be fairly hierarchical. It was not common for leaders in the organization to interact much with front-line workers and supervisors. By setting up its operations in a separate facility 4.5 kilometers from Enel’s headquarters, Enel X could create its own organizational culture focused on digitalization and shift from an utility to a service company.

END OF PREVIEW

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